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CONTENTS

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EDITORIAL

On these pages the editor offers his opinions, unshackled by advertising patrons and unrestrained by anything save a sense of the decent and the truthful. The editor, alone, is responsible for their type, their tone and their tenor.

THE ORIGIN OF HABIT

THOSE of us who find enjoyment in tracing words to an intelligent origin frequently find odd and interesting word sources. Consider, for instance, the word "HABIT." It comes from that great granary of Latin seed words whence the English language has derived so much of its growth. *Habeo-Habere,* is a Latin verb meaning "to have." This root word, incidentally, is found in the English language in a great many words not generally associated with this origin. For instance, the words able and ability, each of them once spelt hable and hability, and then through the English dropping their h's assuming their present form. Such an origin is easily understood when we recall that one of the modern slang terms intended to express possession of ability runs something like this: "that man *has* something," or "he *has it*" or "he *has* what it takes," all of which suggest having ability.

But to return to the word habit—I trust I shall not be labelling this bit of writing as an exhortation or a sermon when I call attention to the fact that in common with all verbs the word "have" may be considered as having two voices, active and passive. To illustrate, "I have a habit" suggests that I have the habit under control. But when rendered in the other voice, "The habits have me," the reaction is not as pleasant and this statement is something in the nature of a confession.

By the way, most of the so-called bad habits of all ages and climes had their real origin in a peculiar protective mechanism. Fermented liquors, particularly the wines and other undistilled beverages of all peoples and periods, were found by practice to be safer to drink in those unsanitary days than plain water, for the alcohol in them killed the germs of disease. It might be interesting to know that in the pages of water history one of the most interesting chapters is that which concerns itself with the so-called dangers of water drinking, for the terrible water-borne plagues that decimated Europe had instilled in primitive hearts and minds a real fear of water. Even as recent as three centuries ago we are told it needed a brave bold man to resist the medical indictment against drinking water. Few indeed had a good word to say for it, although some admitted that one could get used to water drinking if the habit were started early enough in life.

Sir Thomas Elyot, in his book "The Castle of Health," refers to the Welshmen of Cornwall as men "who rarely drink other than common water, yet are notwithstanding strong of body and live well until

they be of great age." Another medical writer of the sixteenth century parades as freaks of nature "some honorable and worshipful ladies who drink little other than raw water, and yet enjoy more perfect health than those who drink the strongest liquors." Another argument for water.

And yet it is said that the Chinese, who had a civilization of their own, millenia before the Japs, knew that boiling polluted water made it a safer drink. As a matter of fact the first pot of tea brewed was the result of a mandarin's effort to hide the mawkish taste and kill the vicious poisons of Yangtse River water by boiling it and steeping in it a few dried leaves of an evergreen shrub that grew by his garden wall. Chin-Nung, a philosopher who lived before Confucius, wrote that "tea is better than wine, for it leadeth not to intoxication, neither does it cause a man to say foolish things and afterward regret them. It is better than water, for it carries no disease, neither does it act as a poison as does water when the wells and rivers are foul with rotten matter," which sounds as if Chin-Nung has dwelt on the banks of the Schuylkill in Philadelphia.

I pause long enough to mention that these arguments are no longer tenable, for the honest physiologist will say today, since our water has been made safe to drink, that there is really no current excuse for alcoholic conglomerations except perhaps for their alleged exhilaration.

Even the poor Indian smoked his pipe of tobacco long before Columbus saw America first, not so much for enjoyment as for the physiologic and psychic protection that such smoking afforded him against the evil spirits of disease and discomfort. Thus we may state that tea, coffee, cocoa, fermented milk, wines, meads, ales and other bibulous brews were originally but crude devices whereby water was made safe and seemly to drink. Yet it is not to be considered that any of these beverages are in any sense essential to normally living people. For the usual demands of a healthy human, water needs not to be teaed or coffeed or sodaed or wined or ginned or cocktailed—just water, plain water, Adam's ale, satisfies every normal physiologic need. Kipling had the right idea about the Universal beverage when Gunga Dinned the well-known barrack room ballad:

> "You may talk of gin and beer when you're quartered safe out here
> And you're sent to penny fight and aldershot,
> But when it comes to slaughter ye'll do your work on water
> And ye'll lick the bloomin' boots of 'im that's got it."

Thus we have come by many of our bad habits quite honestly, although they are coming to be, and have been, so long a part of our very nature that we variably need their stimulus, some of us a cup of tea and some a Pittsburgh stogey, others a pot of murky coffee and others, less wise, a dry martini.

IVOR GRIFFITH.

ORIGINAL ARTICLES

ANTISEPTIC VALUE OF CERTAIN PHENOLIC OINTMENTS[1]

By W. C. Clark

OINTMENTS have been used many years for their supposed antiseptic value. Reddish and Wales (1) examined twenty-eight official ointments and found only nine of them had any antiseptic value. Two of these nine were but feebly antiseptic and therefore of doubtful value. The most significant fact brought out in this paper was that official phenol ointment—of all the ointments which should be antiseptic—was devoid of any zone of inhibition when tested as an antiseptic by the official Food and Drug Administration method. Undoubtedly many official ointments are being used for anticipated antiseptic power that does not exist.

Husa and Radin (2) state that a 10 per cent. phenol ointment produces a 4 mm. zone on an agar plate test. McCulloch (3) reports that the British Army used a 20 per cent. phenol ointment. The high phenol content of these ointments and the absence of any substance to reduce the caustic property of phenol other than petrolatum may prove dangerous. In this series of tests a 10 per cent. phenol ointment in petrolatum base failed to produce a measurable zone of inhibition on a 10 per cent. serum Agar plate, hence even a 10 per cent. phenol ointment which may be dangerous to use because of its high phenol content is not necessarily an antiseptic.

In the paper by Husa and Radin they propose a formula for a 2 per cent. phenol ointment they found to be antiseptic. Their proposed formula is phenol 2 per cent. in a fatty base of 25 per cent. anhydrous woolfat and 75 per cent. petrolatum. Strickland and Prout (4) reported they found this ointment to have no antiseptic power. Tests made in this investigation on an ointment made according to their proposed formula by fusion failed to produce any distinct zone on a 10 per cent. serum-agar plate.

All results reported in this paper are from tests made on 10 per cent. serum-agar plates according to the Food and Drug Administra-

[1] A contribution from the bacteriological laboratory of James F. Ballard, Inc., of St. Louis, Mo.

tion method using 209 A strain of Staphylococcus aureus as test organism.

In view of the fact that this 2 per cent. phenol ointment failed to meet the official tests for inhibitory antiseptic, and because of the fact that phenol is unique in its almost non-selective antiseptic action, it was decided to investigate the possibility of making a 2 per cent. phenol ointment antiseptic with the use of a proper base. Each of the following substances were made into 2 per cent. phenol ointments with the necessary quantity of petrolatum.

Cocoanut oil 10 per cent., 20 per cent. and 33 per cent. Crisco 100 per cent, 50 per cent., 25 per cent., 20 per cent., 10 per cent. and 5 per cent. Castor oil 10 per cent., hard hydrogenated castor oil 5 and 10 per cent. Protegin X. 20 per cent. and 23 per cent., and also 10 per cent. of each of the following diglycol laurate, glyceryl monostearate, and propylene glycol monostearate. Not one ointment in this group met the test for antiseptic ointments on 10 per cent. serum-agar plates.

After these various changes in the fatty base failed to produce an antiseptic ointment with 2 per cent. phenol, it was decided to investigate the use of possible partition agents.

Phenol content was kept at 2 per cent. and an ointment was prepared from each of the following substances or mixtures:

2 per cent. sodium lauryl-sulfonate.
2 per cent. sodium lauryl-sulfonate with 5 per cent. glycerin.
3 per cent. sodium benzoate.
3 per cent. sodium salicylate.
2 per cent. soap.
3 per cent. triethanolamine.

Only one of the additions showed promise of making 2 per cent. phenol ointment antiseptic. The mixture of 2 per cent. sodium lauryl-sulfonate and 5 per cent. glycerin (a combination which is a good solvent for several phenolic bodies) gave a 2 mm. zone of inhibition which, after several tests, proved to be only partial inhibition as scattered colonies grew very close to the ointment.

Even though only a zone of partial inhibition resulted from the use of this partition mixture, it was thought that this mixture might prove valuable when used with phenolic substances of higher germicidal power. Thymol and chlorthymol, were chosen and 1 per cent. ointments of each of these germicides were prepared and tested.

Chlorthymol sample produced a zone of about 0.5 mm. or less and the thymol produced a cloudy zone of partial inhibition about 4 mm.

The fact that thymol and the sodium lauryl-sulfonate-glycerin mixture ointment produced the widest zone attained in this work up to this time, even though only partial inhibition, suggested there was a possibility that by replacing one-half of the glycerin with water and keeping the 1 per cent. thymol present that this base might permit other phenolic bodies to diffuse from a petrolatum ointment. Each of the following germicides were made into 1 per cent. ointments in this base of sodium lauryl-sulfonate-glycerin-water and 1 per cent. thymol, using petrolatum for fatty base; para-amyl-phenol, parachlor-metaxylenol, Santophen "7", and chlorthymol (chlorthymol content was only one-half per cent.). The ointment with 1 per cent. parachlor-metaxylenol produced a zone of 1.5 mm., and Santophen "7" a zone of 0.5 mm. The other ointments produced no zones of complete inhibition. A new series of these ointments were prepared increasing germicide content to 2 per cent. This base proved to be the most promising combination tried this far in this investigation when the germicide concentration is kept at 2 per cent. or less.

The 2 per cent. parachlor-metaxylenol in this special base mixture gave a very good zone of 4 mm. of complete inhibition, the Santophen "7", 2 per cent. gave zone of complete inhibition of 1.5 mm. and 2 per cent. para-amyl-phenol gave zone of 1.0 mm. The 2 per cent. ointment of chlorthymol gave a 3 mm. zone.

Two ointments were prepared from a base of 1 per cent. thymol and 1 per cent. parachlor-metaxylenol in petrolatum. Soap 2 per cent. and glycerin 5 per cent. was added to make the first sample and alcohol 2 per cent. was added to the base to make the second sample. Both of these samples, give distinct zones of inhibition. The ointment with soap and glycerin gave a zone of 3-3.5 mm. and the one with alcohol gave zone of 3.5-4 mm. Soap without glycerin gave no zone.

Five per cent. of wax was incorporated into ointments using same quantities of germicides and in a petrolatum base as in last series of ointments in order to note the effect of wax on the size of the zone of inhibition. In this wax-petrolatum base, 2 per cent. parachlor-metaxylenol ointment gave a zone of 2.5 mm. This is 0.5 mm. less than zone of ointment with no wax. Para-amylphenol 2 per cent. in this wax-petrolatum base gave a very distinct but small zone of complete inhibition. Santophen "7" gave zone of 1.5 mm., chlor-

CHART I

CONDITIONS OF TESTS; OINTMENTS WERE MADE USING PROLONGED FUSION AND AGED TWO MONTHS OR MORE. F. D. A., SERUM AGAR PLATE METHOD WAS USED AND INCUBATED AT 370° C. FOR 24 HOURS. TEST ORGANISM STAPH. AUREUS A 209.

Base		Petrolatum	Petrolatum and 5% Wax	Petrolatum 2% Sodium Lauryl-Sulfonate 5% Glycerin	Petrolatum 2% Sodium Lauryl-Sulfonate 2.5% Glycerin 2.5% Water	Petrolatum 2% Sodium Lauryl-Sulfonate 2½% Glycerin 2½% Water 1% Thymol	Woolfat Anhydrous	Woolfat Hydrous	Cocoanut Oil Petrolatum 50-50	Crisco
Phenol	2%	No Zone			No Zone	Small Zone of Partial		No Zone		
	5%	Too Small	No Zone	No Zone	½-¾ M. M. Zone	1.5 M. M. Zone	No Zone	½ M. M. Zone	No Zone	No Zone
	10%	Too Small	1.5 M. M. Zone	2 M. M. Zone	¾ M. M. Zone	1.5-2 M. M. Zone	4 M. M. Zone	5 M. M. Zone	No Zone	7 M. M.
Para-Amyl Phenol	1%	No Zone			½ M. M. Zone	½-¾ M. M. Zone				
	2%	Only Partial Inhibition	Well Defined but Too Small	1.5 M. M. Zone	1 M. M. Zone	2-3 M. M. Zone	No Zone	No Zone	No Zone	No Zone
Paraphenyl Phenol	1%					Partial Only				
	2%	No Zone	Too Small	2 M. M. Zone	1.5 M. M. Zone	2-3 M. M. Zone	No Zone	No Zone	No Zone	No Zone
Parachlor Metaxylenol	1%	1.5 M. M. Zone			3 M. M. Zone	Partial Only				
	2%	3+ M. M. Zone	2.5 M. M. Zone	3½-4 M. M. Zone	4-5 M. M. Zone	(5 M. M. Partial) 3 M. M. Zone	No Zone	No Zone	No Zone	No Zone
Thymol	2%	Only Partial Inhibition	Too Small	Small Erratic	Only Partial Inhibition		No Zone	No Zone	No Zone	No Zone
Chlor Thymol	1%	No Zone			1-2 M. M. Zone			No Zone		
	2%	1 M. M. Zone	Too Small	1-2 M. M. Zone	3 M. M. Zone	2.5 M. M. Zone	No Zone	No Zone	No Zone	No Zone
Santophen "7"	2%	1.5 M. M. Zone	1.5 M. M. Zone	1 M. M. Zone	1.5 M. M. Zone	2-3 M. M. Zone	No Zone	No Zone	No Zone	No Zone

CHART I

ITMENTS WERE MADE USING PROLONGED FUSION AND AGED TWO D. A., SERUM AGAR PLATE METHOD WAS USED AND INCUBATED RS. TEST ORGANISM STAPH. AUREUS A 209.

Petrolatum 2% Sodium Lauryl-Sulfonate 5% Glycerin 2.5% Water	Petrolatum 2% Sodium Lauryl-Sulfonate 2½% Glycerin 2½% Water 1% Thymol	Woolfat Anhydrous	Woolfat Hydrous	Cocoanut Oil Petrolatum 50-50	Crisco
Zone	Small Zone of Partial		No Zone		
¼ M. M. Zone	1.5 M. M. Zone	No Zone	½ M. M. Zone	No Zone	No Zone
M. M. Zone	1.5-2 M. M. Zone	4 M. M. Zone	5 M. M. Zone	No Zone	7 M. M.
M. M. Zone	½-¾ M. M. Zone				
. M. Zone	2-3 M. M. Zone	No Zone	No Zone	No Zone	No Zone
	Partial Only				
M. M. Zone	2-3 M. M. Zone	No Zone	No Zone	No Zone	No Zone
. M. Zone	Partial Only				
M. M. Zone	(5 M. M. Partial) 3 M. M. Zone	No Zone	No Zone	No Zone	No Zone
y Partial ibition		No Zone	No Zone	No Zone	No Zone
M. M. Zone			No Zone		
. M. Zone	2.5 M. M. Zone	No Zone	No Zone	No Zone	No Zone
M. M. Zone	2-3 M. M. Zone	No Zone	No Zone	No Zone	No Zone

risco	Spry	Vanishing Cream A. Ph. A. R. B.
		1-2 M. M. Zone
Zone	No Zone	4 M. M.
I. M.	7 M. M.	7 M. M.
Zone	No Zone	Too Small
Zone	No Zone	No Zone
Zone	No Zone	Too Small
Zone	No Zone	Only Partial
Zone	No Zone	Too Small
Zone	No Zone	No Zone

thymol 2 per cent. gave a very small zone, and para-phenyl phenol 2 per cent. gave no zone whatsoever. Five per cent. wax distinctly decreases the width of zone of inhibition in these ointments.

Several writers have suggested that fatty substances other than petrolatum are more effective for some antiseptic ointments, therefore, it was decided to investigate certain other fatty substances for possible value in preparing antiseptic ointments from the germicides used in these foregoing tests. Each of the following germicides, phenol 5 per cent., parachlor-metaxylenol 2 per cent., chlorthymol 2 per cent., Santophen "7" 2 per cent., para-amylphenol 2 per cent. and paraphenyl-phenol 2 per cent., were made into ointments in each of the following fats:

Cocoanut Oil.
Anhydrous Woolfat.
Crisco.
Spry.

When tested, not one of these twenty-four ointments produced a measurable zone of inhibition.

Some pharmaceutical textbooks suggest that hydrous woolfat is suitable for use in ointments for absorption and that its water content is valuable in the diffusion of the medicament away from the fatty base. Ointments were prepared from the various germicides in both hydrous and anhydrous woolfat and tested for their antiseptic power. No definite zone was observed in any cases except those of phenol 10 per cent. which had very good zones of 4 mm. with anhydrous and 5 mm. with the hydrous woolfat base. Generally, as indicated on chart 1, woolfat either anhydrous or hydrous has no decided advantage over petrolatum or other fatty bases used with these germicides. Phenol in 10 per cent. concentration being an exception.

Vanishing cream was considered as a possibility because of its large water content and because of its slight alkalinity. Ointments were made with vanishing cream formula I of the A. Ph. A. Recipe Book for the base. Phenol 2 per cent. parachlor-metaxylenol 2 per cent., para-amylphenol 2 per cent. and chlorthymol 2 per cent. each were incorporated into an ointment with the vanishing cream. When first tested, these ointments gave better zones than any reported so far in this paper. However, considering the manufacturing technique it was decided to age these samples in a warm place for several hours. The final zones were: 2 per cent. phenol barely discernable, 5 per

cent. phenol 4 mm., 10 per cent. phenol 7 mm., 2 per cent. parachlormetaxylenol very small, 2 per cent. chlorthymal partial inhibition, and 2 per cent. para-amylphenol very small.

The original zones were large. It is probable that they were large because of the fact that the vanishing cream was prepared first and then germicide added afterwards. It was observed in many cases that when a germicide was added to an ointment with only a very short period of fusion, or no fusion at all that when tested this ointment often produced a relatively large zone. However, when ointments were kept warm for several hours in a closed container to prevent loss of volatile matter the zone dropped to a very low value, if any zone at all remained. Apparently these fatty bodies lock up these phenolic bodies by a type of absorption.

It is a well known fact that to perfume a fatty substance or a soap requires several times the amount of perfume that a non-fatty substance requires. Apparently phenolic bodies act similar to perfumes in fats and soaps. Some sort of absorption must occur in both cases.

Undoubtedly much of the discordance in results reported in the literature on phenolic ointments, is due to the fact that the phenolic substance was only partially absorbed at the time of test.

Conclusion

The results of this investigation, which included one hundred seventy-five ointments, presented several interesting facts:

Ointments of phenolic germicides are likely to have little, if any, antiseptic value in ordinary fatty bases unless very high in germicide content.

A base composed of petrolatum, sodium lauryl-sulfonate 2 per cent., glycerin 2½ per cent. and water 2½ per cent., with or without 1 per cent. thymol promises to be of value when used with phenolic germicides.[2]

The addition of soap and glycerin or the inclusion of a small quantity of alcohol in petrolatum appears likely to be of value as a base for phenolic ointments.

[2] It was found that sodium lauryl-sulfonate (or Santomerse D) when used in two to three times the quantity of phenolic germicide made these germicides miscible with water in all reasonable proportions and from tests made on these water solutions of the germicides with sodium lauryl-sulfonate, the germicides suffer very little, if any, loss in their germicidal power. This fact has promise of great value.

Petrolatum appears to have a great affinity for phenol despite the fact that phenol is the most water-soluble of all the germicides tested, it requires more than 10 per cent. phenol in petrolatum to show a measurable zone!

Chlorthymol 2 per cent. in petrolatum should be three times as strong as phenol if its phenol coefficient held when in petrolatum, yet only a small zone results!

Parachlor-metaxylenol, 2 per cent. in a petrolatum ointment gives a good 3 mm. zone of inhibition although it is much less soluble in water than phenol and has but approximately one-fifth the phenol coefficient of chlorthymol.

These facts corroborate the prediction made by G. F. Reddish (5) that the antiseptic value of an ointment could not be told by the antiseptic value of its constituents. This investigation plainly indicates the need of careful check on any phenolic ointment to ascertain its antiseptic properties.

Another important fact to be kept in mind is that a freshly prepared ointment which has had little or no fusion may be decidedly antiseptic for a short time and the antiseptic value gradually diminish. This fact may account for variations reported by different investigators using the same formula.

Before any phenolic ointment is claimed to be antiseptic it should be aged sufficiently to indicate that the antiseptic power will not disappear in time. During this series of tests it was observed that prolonged fusion of the ointment soon reduced the antiseptic value and was a likely substitute for determining the effect of prolonged storage on the antiseptic qualities of an ointment.

Acknowledgment

The author acknowledges a deep debt of gratitude for the kind guidance and help, so readily offered by Dr. George Reddish in this investigation.

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AMERICA'S OLDEST PHARMACY*

By R. D. Billinger

Lehigh University, Bethlehem, Pennsylvania

THE oldest drug store in the United States which is still in existence is located in Bethlehem, Pennsylvania.(1) It is of Moravian origin and dates from 1743, two years after the founding of the city. The present name of the firm is the Simon Rau & Co. Drug Store.

Fig. 1

"AMERICA'S OLDEST PHARMACY"

This was not the earliest apothecary shop on the continent. Two hundred years before, in 1535 a French apothecary Francois Gilead had come to New France (Canada) with Jacques Cartier who founded the present Montreal. In 1620 the Mayflower at Plymouth included among its passengers an apothecary Giles Firmin and a physician

*Presented before the History Division of the A. C. S., Baltimore, Md., April 5, 1939.

Samuel Fuller. There were also shops among the colonists in New York, Boston, Perth Amboy and Philadelphia.

"Die Apotheke" as the Bethlehem pharmacy was early known was seventh in order of founding, but is the sole survivor of those earlier shops. There are a number of old pharmacies in the eastern States which date back to 1780-1800.

Bethlehem, some fifty miles from Philadelphia, was settled in 1741 by a devout group of Moravians, known as the United Brethren. These sturdy settlers were a pious group who traced their origins to the fifteen century when John Hus was their martyred leader. Originally they had come from the twin countries of Bohemia and Moravia, but they had been exiled from place to place. Their congregations which emigrated to America numbered followers from Germany, Holland and England. They were encouraged by the patronage of Nicholas Louis, Count von Zinzendorff.

Among the second "Sea Congregation" of Moravians to come to Bethlehem, late in 1743 was John Frederic Otto. Chosen to serve as physician to the new settlement he started the first collection of drugs and medicines in a room of one of the Moravian Community buildings. This was the beginning of our historic pharmacy.

In 1750 a brother John Matthew Otto came to assist in the medical practice. The Otto brothers were university trained physicians, and not common practitioners as was the case in so many of the early settlements. Their father, John Bernard Otto, had been a physician.

John Frederic had attended the Universities of Jena and Halle and was graduated at the latter institution. Here he must have come under the influence of Friedrich Hoffman who was one of the most prominent characters in Germany pharmacy in the eighteenth century. Hoffman was a professor at Halle for forty-nine years and a large contributor to the literature of pharmacy. Some years before, Stahl—of phlogiston fame—had been professor of medicine at Halle. Dr. Otto served as a regimental surgeon in the Netherlands for a time before being awakened to the cause of the Moravian Brethren.

The younger Otto, John Matthew, studied medicine with his father and also received lectures at Strasburg for two years. Here he learned medicine, anatomy and osteology, and received his medical degree. An account of him states that he lost the use of one hand through infection, following a medical operation. This brother

served for thirty-six years in the Bethlehem region, following his arrival in 1750. The elder John Frederic removed to Lititz in 1760 and in 1763 settled in Nazareth, Pa.

The erection of a separate building on Main Street devoted to pharmacy dates from the summer of 1752. The establishment grew as business progressed. The first building (2) was a single story

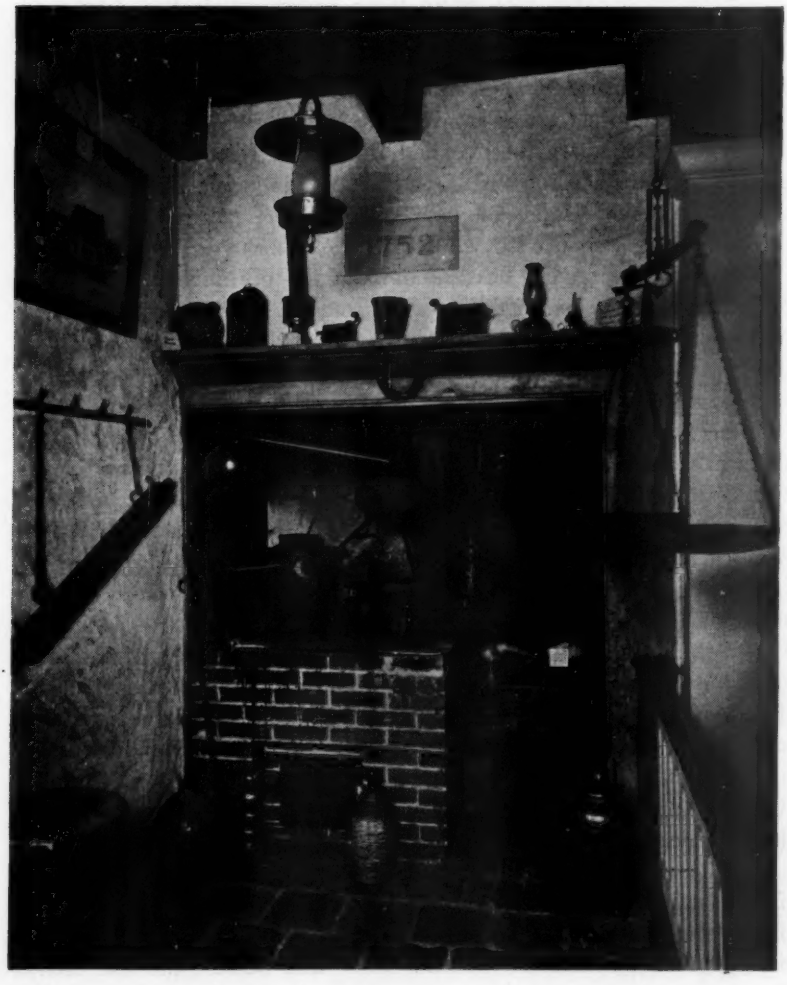

Fig. 2
"AMERICA'S OLDEST PHARMACY"

structure occupied as a dwelling and drug store, and an adjoining frame laboratory. In 1764 a second story was added of frame and brick.

Some of the original apparatus is pictured in Figure 1. The ointment, drug and pill jars were imported from Holland. They are of blue and white Delft ware. Also included are a large copper still, ointment mortars, large iron mortar, small brass mortar, etc. The equipment of this early pharmacy has been carefully preserved in the rear of the present store. (Figure 2 and Figure 3.) To the student of early pharmacy and chemistry it is an interesting glimpse into the past. Thither come students of the Philadelphia College of Pharmacy, which has furnished most of the proprietors of this store during the past century.

As early as 1747 an extensive garden was laid out nearby to raise medicinal herbs for the drug trade. These were hung in the laboratory to dry and were later compounded for local use. The flora of the region was studied and special assistants were furnished to aid the busy Doctor Otto. Among the virtuous remedies snake root and sassafras berries seem to have ranked high.(3)

This influence of herbs in medicine was prevalent in Europe as early as the sixteenth century. There great botanic gardens were prepared to study medicinal plants. Somewhat later pharmacists and physicians joined in botanical excursions called "herbations" in order to describe and classify plants for medicinal properties.(4)

The Doctrine of Signatures which attempted to find resemblances between the plant and the disease was a kind of superstition which had arisen from the overzealous herb users. The names of some of our common plants—"boneset", "feverwort", "heartsease", etc. arose in this way. This doctrine really dates back to the days of Pliny. (23-79 A. D.)

Among the remedies of early colonial times LaWall (5) lists the following:

"Jimson weed was smoked in a pipe for asthma. Pokeberries, when ripe and the juice dried in the sun, were made into a plaster for cancer. Sour dock root was made into an ointment for tetter. Catmint tea was used for colic; sassafras root as a purifier of the blood; grapevine sap to make the hair grow; boneset for consumption."

That Bethlehem was fortunate in having carefully trained physicians and pharmacists in its early history is evident when we read of general practice elsewhere.(6)

"There were some few educated physicians and apothecaries in each of these settlements, but for the most part the practice of medi-

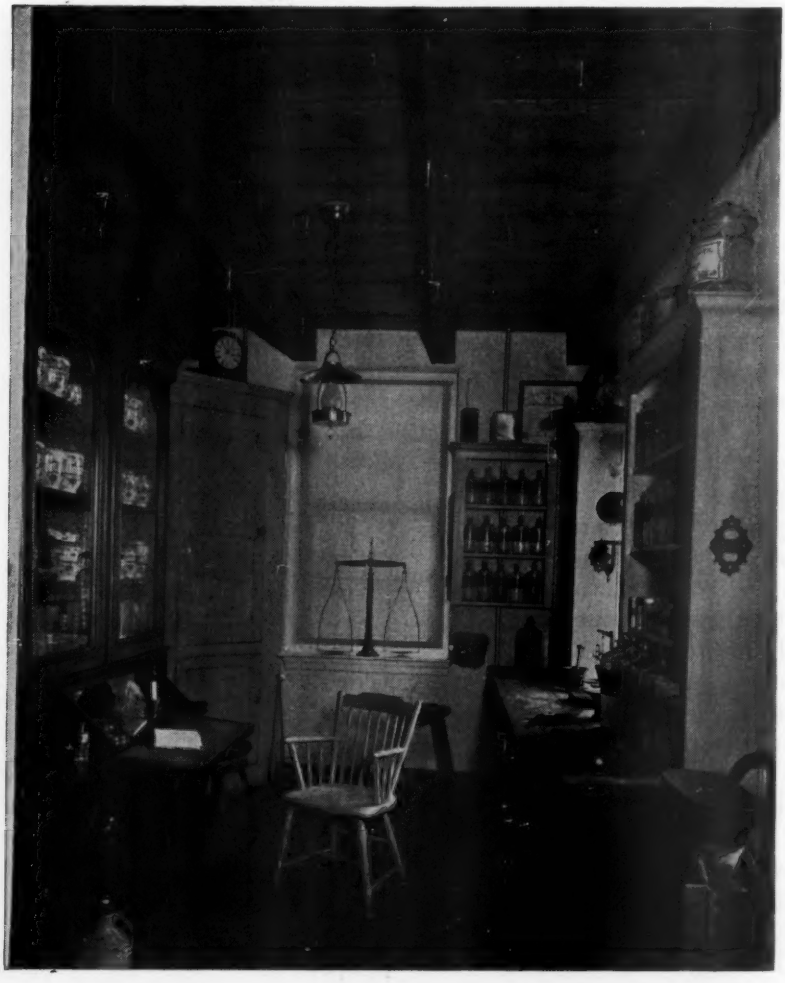

Fig. 3
"AMERICA'S OLDEST PHARMACY"

cine consisted of empiricism and the following of Indian folk lore.—Anyone who knew calomel from tartar emetic and jalap from ipecac, and had the assurance to use them, who could make and apply ointments and plasters, dress wounds or splint a broken limb, was a welcome settler and received the title of Doctor without asking." It is said that only one among seven practicing physicians held European degrees. At the time of our War of Independence there were about 3500 practitioners in the colonies.

The United Brethren of the Moravian Church travelled to "the Indian's wigwam, in the settler's cabin, in the hut of the despised negro, among churchmen, sectarians and separatists of every nationality, creed and name, in the town and forest." (7) The brothers Otto likewise were in demand to render medical aid to settlers in a wide radius and sometimes travelled fifty or more miles to an isolated patient. Their medicines were prepared with great care and some were sent to Philadelphia to supply a strong demand. An imitation of a celebrated Bethlehem balsam was sold in New York as "Doctor Schmidt's Balsam." In the early days of Bethlehem the profits from medicines were larger than from any other kind of manufacture in the village.

Busy as Die Apotheke must have been in normal times it became overrun during the War of Independence. Bethlehem was selected as the site for a military hospital and in 1776 and 1777 hundreds of wounded soldiers were sent from Long Island, from the skirmishes in Jersey and the battle of Brandywine to be quartered in the large buildings of the Moravians. Of course army surgeons and special supplies were sent here, but the local supplies were taxed to the extreme. The scarcity of supplies may be judged from Levering's statement that "a bushel of salt cost at this time $22."

The Moravians who were non-combatants were expected to pay in every other way for the cause. Their zeal and care of the sick and wounded won them a high place in the esteem of the Government. Thither came Lafayette to convalesce after being wounded at Brandywine. High ranking officers and members of the Congress visited and stayed to rest in Bethlehem. The facilities of the community were so overtaxed in 1777 that seven hundred men were assigned to one building designed for two hundred. Wounded and prisoners were quartered in attics and outdoors in tents. Fever broke out and hundreds died so fast that coffins could not be made for them. As in all wars there were many unknown and unnamed soldiers.

Shortly after the Revolution in August 1783 an important visit to Bethlehem was made by Dr. John David Schoepf, a surgeon from Bavaria, who had served in the British Army. He was in quest of medical plants to aid in his collection of materia medica. In this he was aided by Dr. J. Matthew Otto who was familiar with the indigenous plants. The results of Schoepf's researches were published at Erlangen in 1787 as "Materia Medica Americanis Septentrionalis Pottisimum Regni Vegetabilis." This was the first American Material Medica and much of it was written in Bethlehem.

American medicine and pharmacy learned some of its early remedies from the Indians. Although it is difficult to get direct evidence of the gleanings in Bethlehem we can be certain that people who were so friendly to the Indians, who converted and helped them, must have learned their arts of healing. Occasional references to mixtures such as gunpowder and humus for external applications seem to smack of the arts of the "pow-wow" doctor; whose remedies are still sought by some folks of this region. However, there is a strange coincidence between the Latin named drugs which crept into practice and the lowly American Indian plants. LaWall (8) has listed a number of these drugs and their equivalents: Apocynum (Indian

Fig. 4
"AMERICA'S OLDEST PHARMACY"

hemp), Caulophyllum (squaw root), Euonymous (Indian "wahoo"), Hydrastis (yellow puccoon or golden seal), Lobelia (Indian tobacco), Podophyllum (mayapple or mandrake), Sanguinaria (bloodroot), ulmus (slippery elm).

Dr. J. Eberhard Freytag arrived in Bethlehem in 1790 and assumed charge of the pharmacy. He was the last of the German university trained physicians to manage the store. Like the elder J. F. Otto he was a graduate of the University of Halle in 1789. His contact of forty-three years with the store was the longest term of any of its managers. He purchased the store in 1796 from the Moravian Congregation and since that time it has been under private ownership.

Simon Rau who had learned his trade as an apprentice to Dr. Freytag purchased the store in 1839. In 1862-3 the old building and laboratory of 1752 was razed and replaced by a larger brick building,

Fig. 5
"AMERICA'S OLDEST PHARMACY"

which served as a dwelling and store. This building stood with very little change until 1935 when it was moved some thirty feet farther north, and completely renovated. Figure 4 shows the early store of the Revolution period and Figure 5 is a photograph of the modern store.

Among the books in the possession of the Rau Drug Store is an interesting little book of formulas which dates from 1743. The writing is mostly in old German script and must have been done by the original Dr. J. F. Otto. One part of the books contains a diary of his trip to America. The remainder consists of several dozen formulas, some of which seem to be written in another hand (?) in English. There is also a section of several pages devoted to syphilis, that disease which even in the days of Columbus was a dreaded menace. A few of the formulas have been copied by the writer:

Hysterial Drops

kau. Valerian	3 oz.
Castor	½ oz.
Menth. pepert.	1 oz.
Opium	¼ oz.
Diluted Alcohol	

Fever and Ague Powder

Powder Cinchona	1 oz.
Powder Cloves	½ oz.
Cream Tartar	1 oz.

Horse Powder

Powder foenugreek seed	6 lb.
Powder fennel	6 lb.
Pulvis asafoetida	1 lb.
Flour sulphur	4 lb.
Powder saltpetre	2 lb.
Powder Antimony	6 lb.
Powder Rosin	2 lb.
Powder Alum	2 lb.

Harlem Oil

Balsam Sulphur	1 lb.
Oil Suicini	3 oz.
Oil Turpentine	10 oz.
Oil Juniper	1½ oz.
Oil Linseed	1 lb.

Eye Water

Extract opium—water soln.
Sugar lead
Rose water
Tinct. saffron

Cow Powder

Angelica
Gentian
Foenugreek
Juniper berries
Saltpetre

Depilatory Powder

Burnt lime
Pearl ash
Sulpuret Potash

A list of the proprietors and chief events in the history of the store have been kindly furnished by Mr. P. B. Clarke the present manager:

1743—"Die Apotheke" started in section of Clergy House on Church Street—Dr. J. F. Otto.
1750—Dr. J. M. Otto joined brother in business.
1752—One-story building erected on Main Street.
1764—Building enlarged to two stories.
1761-1789—Resident apothecary Timothy Horsefield, Jr., under direction of Dr. J. M. Otto.
1790-1832—Dr. J. Eberhard Freytag.
1832—Simon Rau assisted Dr. Freytag.
1839—Store purchased for $1,500 by Simon Rau.
1866-79—Brothers Simon and David Rau conducted pharmacy as Simon Rau and Company.
1879-1906—Robert Rau, nephew of Simon R. and Eugene A. Rau, son of Simon R.
1906-13—Eugene Rau and C. N. Lochman.
1913-20—C. N. Lochman and F. P. Miller.
1920-1930—C. N. Lochman and R. A. Smith.
1930-1938—R. A. Smith.

Since the death of Mr. Smith last year, the store has been managed by Mr. P. B. Clarke for the Smith estate. In recent years much

has been done to bring national attention to the history of this important pharmacy. Rival claims of other early stores have been investigated and erroneous views corrected.

The real chronicler of the store's history was one of its own proprietors, Mr. Robert Rau. Carefully preserved in the Transactions of the Moravian Historical Society are his accounts of Bethlehem's early physicians and "The First Apothecary in Bethlehem."

The writer is gratefully indebted to Mr. Henry Rau, grandson of Robert Rau for inspection of family papers and writings; to Mr. P. B. Clarke of the present Rau Drug Store; and to the Reverend Doctor W. N. Schwarze for kind assistance in translation and examination of manuscripts in the Moravian Archives.

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8. LaWall (*ibid.*) 398.

THE REMEDIES ARE NOT WHAT THEY USED TO BE

By T. Swann Harding
Falls Church, Va.

IN the *London Morning Post* of July 22, 1782 we find the advertisement of the Great Katterfelto whose remedy had wiped out an influenza epidemic. He was bespeaking the virtues of his new "solar microscope" which enabled him to see the minute bugs that caused influenza.

By means of it "those insects which caused the late influenza" became "as large as birds, and in a drop of water the size of a pin's head will be seen 50,000 insects." Naturally Katterfelto also sold his medicine "which has cured many thousand persons of the late Influenza."

It is remarkable how the cause and cure of a disease such as this can be found and then, some hundred and fifty years later, entirely lost again. At least there was no great prevalence of cold and influenza cures again until after the epidemic of 1918.

In recent years, though doctors and medical research workers have contended that the cause and cure of both colds and influenza remain unknown, there has been no dearth of remedies. Four or five years ago it was no trouble at all to find the advertising of one-night cold cures which struck the ailment down in its tracks and ended it at once.

Yet within that relatively brief period the cure for colds has again disappeared. Do we know less of medical therapy than we did say in 1934? Is it possible that the passage of the Copeland, Food, Drug and Cosmetic Act and of the Wheeler-Lea Act—the latter empowering the Federal Trade Commission to eliminate false and misleading advertisements—could have had anything to do with this?

It is amusing and informative to look into this matter a little. In 1934 "Children's Colds Ended Sooner without dosing" if you used Vick's. You could also use the Vick nosedrops to prevent colds. Today we read more simply and less dogmatically: "Caught Cold?—to relieve distress—rub throat, chest, back, with Vick's."

In 1934 there were quick, one-night cold cures. Today there are remedies for "baby's head cold misery," or "to prevent night

coughing;" and there are drops "to help prevent colds developing" but which will no longer surely prevent a cold as in 1934.

In 1934 also we read "Children's Coughs Need Creomulsion. Prudent mothers turn to it. It emulsifies creosote with 6 other important ingredients." Or: "Bronchial Irritations Need Creosote—powerful in treatment of colds and coughs, stops those that might otherwise lead to serious trouble."

Today we read: "Still Coughing?" This ushers in Creomulsion with which "you *may* get relief" no matter how many other medicines you may have taken. For it goes to the seat of the trouble and *"aids nature"* to sooth and heal inflamed mucous membranes. Note the dubiety introduced by the words in italics here and later herein, italics the present writer's.

In January 1934 we could read "Lawyer Ross Eases his Throat Instantly and wins his case." This captioned a cartoon strip in which the stenographer told the lawyer to gargle Bayer Aspirin—"the 3-minute way to relieve sore throat." Because doctors now advised against "old-time washes and antiseptics." So use aspirin, reduce infection, and ease pain instantly.

Be very sure to get Bayer Aspirin, of course. For only it is "real" and will "dissolve quickly enough" to make a gargle lacking irritating particles. Then followed the line that the Federal Trade Commission banished some time ago: "Does not harm the heart."

Other advertisements of the January 1934 vintage advised a 1, 2, 3 cold aid: Crush and dissolve the Bayer tablets, gargle, repeat the gargle and do not rinse the mouth. For medical science had "thrown new light." Irritation was eased in two or three minutes. "It requires medicine to do these things" but be sure to get *real* Bayer Aspirin.

In 1939 we also read a 1, 2, 3 advertisement starting in capitals: "GOT A COLD? ACT FAST. Here's Easy Way to Quickly Relieve Painful Discomfort?" There are three pictures of the same woman taking three Bayer aspirins with a glass of water to repeat every two hours; gargling with three tablets in one-third glass of water; looking at a thermometer.

For a new note enters here. If the temperature does not go down and the throat pain is not quickly relieved, get a doctor. The manufacturers are less certain of their product now. True the text insists this is "fast-acting" aspirin. It is recommended for relief

of headaches and pain from rheumatism, neuritis, neuralgia—the laymen obviously being able accurately to diagnose these conditions.

But you are advised to see your doctor if your cold persists. The doctor "in all probability, will tell you to continue with Bayer Aspirin," because it relieves discomfort and also fever. (He may at that!) We read that this simple treatment has largely supplanted the use of "strong medicines" in colds. But get the "genuine" Bayer product. A note of hedging has crept into this advertising since 1934 undoubtedly.

But let us look further before drawing conclusions. Let us consider the product the American Medical Association has called a "mouth cosmetic"—Listerine. In March 1933 it was using advertisements which began in capitals: "Fight Colds if you would guard against TUBERCULOSIS." Tuberculosis (or pneumonia, or some other very serious ailment) was always featured in these advertisements in enormous, ominous capitals.

We read that Listerine combats colds because it is fatal to germs. So gargle with it. Obviously there was no lack of manufacturer confidence here. But today a different note is struck in the advertising and the old convictions about serious ailments have been displaced.

An advertisement begins "At the first symptom of sore throat" get Listerine quickly. Gargle, for Listerine garglers have "fewer and milder" colds. "The secret is, *we believe*" (fancy the makers being so cautious!)—"that Listerine kills millions of mouth-bred secondary invaders"—does that mean germs, or what?—"which complicate a cold."

Today we find the germs reduced 80 per cent. by gargling in lieu of the 99 per cent. of 1934. Those days Listerine killed millions of germs outright. Now the most that can be claimed is that "dangerous" bacteria are reduced 96.7 per cent. by fifteen minutes of gargling. What are the "dangerous" germs? How can we laymen find them? Who gargles fifteen minutes? Medical research has proved gargling to be ineffective in germ killing, regardless of what is gargled.

We begin to detect a wistful note of nostalgia in modern advertisements. Doubt has seeped into the manufacturer mind—or can it be uncertainty about the Federal Trade Commission? In the good old, old days, as Joe Cook might say, Doan's kidney pills simply fixed you up, cured your kidney disease right off the bat. You had

back pains. You put up your hand. You knew it was kidney disease and you got Doan's. Or you could get Gold Medal Haarlem Oil Capsules—a mixture of turpentine and other oils that irritated the kidneys, hence, like most kidney cures, was diuretic.

Doan's pills also at one time contained a kidney irritant. Thus irritate your kidneys and make them behave. But today Doan's advertising suggests that people have backaches they often blame on colds or strain though these are sometimes caused by tired kidneys and you need Doan's to flush out "acid." For "acid" and "acidity" are magic words today. The Haarlem Oil Capsule advertising also uses this motif of flushing out waste and acids.

Then Mountain Valley Spring Water asks plaintively: "Are you neglecting sluggish kidneys?" and insists that the water "*tends* to stimulate the kidneys to a healthy action and eliminates the poisons which cause *many forms of* RHEUMATISM." In other advertising we read that the water is recognized "as a valuable natural aid to weak kidneys" or: "Arthritis! Neuritis! Rheumatism!—Don't neglect what may seem to be a trivial ache or pain and allow a serious ailment to develop."

This in general is good advice, but it argues no particular confidence in the remedy offered.

In January 1934 also Cystex was saying "Help Kidneys—if poorly functioning bladder and kidneys make you suffer from getting up nights, nervousness, rheumatic pains, stiffness or acidity, try the guaranteed doctor's prescription Cystex."

Today the advertising much more modestly goes like this: "Back Pain and Kidney Strain—things like wrong foods, drinks, worry, overwork, put a strain on the kidneys and functional disorders develop; the true cause *may be* excess acid; help kidneys purify the blood with Cystex." Unless the first dose begins to clean out acids—which you can tell at a glance—ask for your money back. It don't hurt to ask.

In short—the acidity, getting up nights, leg pains, nervousness, dizziness, rheumatic pains—*may be* due to this acid—who knows?

The same note of uncertainty appears generally in remedy advertising. In 1934, it was, that one read: "PSORIASIS? If so—Try Siroil at Once! Don't Delay. This relief has accomplished wonders for men, women and children who have been chronic sufferers from psoriasis. Siroil applied externally to the affected area causes the scales to dis-

appear, the red blotches to fade out and the skin to resume its normal texture."

In those days apparently any layman could at once diagnose psoriasis and a palliative composed of mineral oil and a few other ingredients would cure it.

But on February 11, 1939 the Federal Trade Commission informed the makers of Siroil that the product does not remove dandruff, is not a cure or remedy for dandruff or psoriasis, will not close up psoriasis lesions nor make skin sores or blemishes disappear permanently. Siroil would not remove crust, scales, lesions or blemishes caused by psoriasis. It would not even relieve discomfort—except in cases where the condition complained of was external in character and located solely in the outer skin layer.

Now what can Siroil claim to do? Confidence in the remedy is destroyed. But the competent layman can now not only recognize psoriasis; he can also be sure when his skin ailment is solely in the outer skin layer, which enables him to know what to do.

In 1934-35 the sufferer from eczema, pimples, irritation, chafing, etc., could get relief from concentrated, efficient Poslam which promptly soothed. It also helped complexion, dried up surface pimples and improved the skin. Would any such remedy promise as much today?

Consider these Resinol advertisements: February 1934—"ITCHING SKIN—Wherever it occurs on the body—however tender or sensitive the parts—quickly and safely relieved by Resinol." October 1935—"BLOTCHES from surface conditions need not be endured; make your skin clearer and smoother with soothing Resinol." Note the loss of manufacturer confidence.

In February 1938 that confidence seemed still less buoyant for we read: "IF WINTER WINDS ROUGHEN YOUR SKIN—Allay the stinging soreness and promote faster healing with soothing, dependable Resinol."

But today Tums, as formerly, relieve acid indigestion. Bell-Ans, which formerly enabled you to eat what you liked, being the "largest selling digestive tablet in America," today says: "Help Stomach Digest Food Without Laxatives—and You'll Eat Everything from Soup to Nuts." Don't take a laxative; that's bad. Take Bell-Ans to make excess acid harmless. But the old sure cures for stomach ailments and even ulcers are gone.

You are still invited by Carter's Little Liver Pills to "WAKE UP YOUR LIVER BILE WITHOUT CALOMEL" and "Jump Out of Bed in the Morning Rarin' To Go." The dissertation still runs to the effect that ordinary laxatives will not do, it takes Carter's pills to get the two pounds of bile flowing freely.

That is unless you believe in Dr. Edward's Olive Tablets which, as of January 1934, said: "STOMACH Upset" and "Quick Relief from Constipation." For the tablets aroused the liver, healing, soothing, vegetable laxative that they were, and cured many stomach ills. They did not contain calomel. Discovered by Dr. Edwards, they caused the bowel and liver to act normally.

As of 1938: "Doctor's Formula Helps Liver Bile Flow Freely." The pills are still vegetable and harmless. They still step up the liver bile as they did all the years Dr. Edwards used them for patients with sluggish bile. Needless to say this entire medical-bile doctrine is unorthodox. Those who know say such pills are merely mild laxatives and may or may not affect bile secretion.

In general but not always, a transition has taken place in remedy advertising. When it has not taken place we may assume that the original advertising was reasonably accurate and in line with the consensus of medical opinion.

But when, under date of September 18, 1934, the Federal Trade Commission forbade Bayer Co. Inc. to make the following claims about its aspirin, we begin to discern a reason for the greater caution. Bayer was forbidden:

> To imply that the word aspirin was their trade mark; to say that no harmful after-effects followed the use of their aspirin; to say "It does not depress the heart" or that "It does not upset the stomach;" to state that it promptly relieves sore throat (though you will note above this claim is still made by implication); or to claim that Bayer aspirin gives quick relief for bad headache, neuralgia, neuritis, or other severe pain or may be taken freely by nervous patients as a sedative—unless such statement be "properly qualified, limited, or explained."

Or take Marmola, the obesity remedy, as an example. In January 1934 the advertising said: "Take Your Fat Off Your Mind" and explained that Marmola was the great corrective for abnormal obesity, long used by physicians the world over. It sounded miraculous but take four tablets a day and get rid of burdensome fat; when you have gone far enough quit.

The advertisement is much more involved and less confident as of 1938. It begins with a picture of a woman in a dress too large for her and the caption: "Look at the Fat I've Lost." That dress used to make her look like a stuffed sausage, but not since she took Marmola. However, Marmaola "is not intended as a cure-all for all ailments." And then follows this technical material that can but be meaningless to the average person:

> This advertisement is intended only for fat persons who are normal and healthy otherwise and whose fatness is caused by a reduction in the secretion of the thyroid gland (hypo-thyroidism) with accompanying subnormal metabolic rates. No other representation is made as to this treatment except under these conditions and according to the dosage as recommended.

The obese are not even expected to diagnose their hypothyroidism. They are told to let a doctor do that. But will that stop fat people from trying Marmola on their own? Hardly.

In 1934 a painkiller advertised: "It's already dissolved. Gives quickest relief from pain. Brings peaceful relaxation. NEURALGIC PAIN (or HEADACHE) Capudine."

Today we read: "The ingredients of Capudine are so efficiently combined that headaches, neuralgia, and muscular pains are quickly relieved. Try this delightful remedy. Note how quickly comfort returns, you feel more cheerful, and nerves become steadier."

Why should the manufacturers in this case complain of governmental regulation? They still make the grade.

SSS Tonic which once kept pop fit and on the job when illness might have given his job to another is about the same. Then it made rich, red blood and aided digestion. Today—*"in the absence of an organic trouble"* (it's so easy to diagnose yourself) "it will build blood back up to normal again" (in the quaint grammar of the advertising man), and whet appetite.

SSS Tonic will also produce "Women that Stop Men Cold and always stand out, alone or in groups." But Pinkham's compound is likewise potent and "Men Love Girls With PEP." Formerly Lydia catered to quivering nerves, when you were just on edge and couldn't stand the children's noise—it gave just the extra energy you needed. But now the remedy is an aid for quiet girls men don't like; it peps them up enabling them to win men's interest.

Phillips Milk of Magnesia still corrects "acidity." But you can't recognize that? Then just check off these symptoms: Heartburn; nausea; no appetite; tired feeling in the morning; logginess; sour stomach; acid headache (surely you can recognize an acid headache even if you can't diagnose "acidity"); gas. Now if you have any of these symptoms you are told to suspect acid indigestion as the cause. Then "you must waste no time alkalinizing," whatever that may mean, "the quick, easy Phillips way."

But "Go to Your Doctor to Find the Cause" and "Don't Be Alarmed" if you get a low score on those symptoms—and suspect over-acidity as the cause—for Phillips can easily give you relief from acid indigestion.

And what happened to Fleischmann's yeast which used to cure pimples, skin eruptions, boils, carbuncles, constipation, skin diseases, and general malaise? Today it "offers more complete results than just vitamins alone." It has a "booster action" to stimulate slow digestion of people who are nervous, rundown, have severe colds, poor appetite, slow digestion. It is richer in vitamins A, B, D, and G, and the fresh yeast helps quicken and stimulate slow digestion.

We are reminded of the seventeenth century quack, William Salmon, whose "antidote against the Plague and All Pestilential Venom" he said "Certainly takes away and cures melancholy and is without doubt not only a Restorer of the natural parts but a true and certain prolonger of Life."

Then what may we conclude? In general it is safe for any remedy to declare: "This remedy is recommended for the conditions in which its use is indicated." It may also bellow loudly about acidity, hyperacidity or alkalinizing, provided it is a stomach, cold, or kidney remedy, but *not,* mind you, if it is a dentrifrice.

That stuff about hyperacid mouths doesn't go any more. It's out. Dentrifrices are different. A few years ago they cured almost everything. Today they help clean teeth, which is all the American Dental Association ever said they would do.

Pepsodent contains "Irium" (not saying what that is) and is now a powder. It "brushes away unsightly *surface* stains that *hide* the full natural luster of your teeth!" It does not make teeth white.

Forhan's no longer cures pyorrhea but its advertising says: "Do both Jobs! Aid Your Gums While You Clean Your Teeth." It "Brightens teeth, helps make gums firm and healthy." Incidentally

there is no scientific warrant for the claim that gums need massaging to restore the health they lost when we quit eating foods difficult to chew. Yet "Forhan's and massage aid your gums" in advertising.

The massage is mythically supposed to make your gums firm, sound and healthy; healthier gums are supposed to mean brighter teeth. But "what your dentist can do for soft, tender, bleeding gums is worth many times his fee"—yet he may fail unless you do your part.

But dentifrices of a few years ago killed germs, neutralized mouth acids, halted tooth decay, cured pyorrhea and pink toothbrush, removed plaques, were antiseptic, had low surface tension, stimulated salivary secretion, contained free iodine, whitened teeth, removed seven stains, prevented caries, and made you a social asset.

In 1934 Ipana said massage your gums with it and combat pink tooth brush, but advised you have your dentist remove tartar to prevent gum troubles like Vincent's disease, pyorrhea, and gingivitis, diseases dental advertisements do not even mention now. Pepsodent in 1934 was telling the public that Eskimos and primitive Africans had good teeth because they chewed hard foods. It bespoke its notable film-removing power because its "new material" removed mucin plaques causing decay. How much dental "science" and "pathology" is today outmoded and forgotten!

But good old excess acid, hyperacidity, and gastric acidity remain. Scientific medical men know nothing of the former two ailments at all; they rightly say also that the stomach must be acid, or digestion stops. Even if the stomach is low in acid or is alkaline we laymen might readily assume it was acid.

But Phillips Milk of Magnesia still combats stomach acidity—thus stopping digestion perhaps. It also aids us in acidity. The kidney cures and the mineral waters, as we have seen, correct acidity, this time elsewhere than in the stomach. The stomach nostrums correct "*Hyperacidically induced* STOMACH ULCERS—No Need to Suffer without trying TOMA Tablets."

Overacidity is causing more diseases than ever in history and the words acidity or hyperacidity seem at once to take the curse off any advertisement for a remedy, however mendacious it may otherwise be.

Sal Hepatica consistently uses the wheedling plea regarding acidity over the radio to spoil an otherwise quite enjoyable program. What about it?

On November 11, 1938 Bristol Myers, makers of Sal Hepatica, were warned not to represent it as counteracting and correcting all systemic conditions of the body associated with rheumatism, arthritis, neuritis, and constipation, or as constituting a scientific or successful treatment for colds, or an effective remedy or cure for headaches, regardess of cause. It was no longer to be recommended as a purifier and cleanser of the system effectively to rid the body of poisonous wastes.

Why? Because all this was false and misleading. BUT the makers might say that Sal Hepatica *may* be beneficial in cases of gastric hyperacidity, and will act as do other laxatives.

How much has the public gained here? Gastric hyperacidity is difficult to diagnose in the clinical laboratory. It may take several test meals to get the stomach to act normally. Thereafter stomach acidity varies functionally with age, fatigue state, sex, time of day and many other factors. It is no more a disease entity than is "acidosis" and the latter is a pure figment of the advertiser's imagination.

Generally speaking it is safe to write off all claims made in remedy advertising to the effect that the product corrects "acidosis," overacidity, hyperacidity, or excess gastric acidity. Then what have you left?

In most cases the honest advertisement would very closely approximate the meaningless but honest label statement that has for some time adorned bottles of Lydia E. Pinkham's Vegetable Compound, to wit:

"Recommended as a Vegetable Tonic in Conditions for Which the Preparation is Adapted."

If the user can, then, diagnose his ailment correctly, find the remedy that cures it, and recognize clearly that no serious organic trouble underlies his superficial symptoms—he can go right ahead. Since most remedy makers do not publish abroad the formulas of their products he will find this a bit difficult. Finally he must get used to discovering that the advertised sure cure of yesterday is the limited and imperfect palliative of today and not even the maker has much confidence in it.

THE PHILADELPHIA » » COLLEGE OF PHARMACY AND SCIENCE » » »

THE ONE HUNDRED AND SEVENTEENTH ANNUAL COMMENCEMENT

THE annual commencement of the College was held in the college auditorium on Wednesday, June 7th, at 8 P. M.

Candidates for degrees were presented to President Wilmer Krusen by Dean Ivor Griffith and Dean Julius Sturmer.

The degree of Doctor of Science, honoris causa, was received by:

Clarence Mahlon Kline, president, Smith, Kline & French Laboratories.

Solomon Solis-Cohen, eminent Philadelphia physician and author.

The degree of Master of Pharmacy, honoris causa, was received by:

Henry Vernon DeHaven, an outstanding Pennsylvania pharmacist.

Charles Torbert Pickett, editor *P. A. R. D. Journal.*

Degrees in course, certificates and prizes were conferred as follows:

MASTER OF SCIENCE IN CHEMISTRY

Norman Uranson

MASTER OF SCIENCE IN PHARMACY

Felice Joseph DeMaria
Benjamin James Kingwell
William Gregory Knapp, Jr.
Daniel Ungar
Albert Francis Morgenthaler

MASTER OF SCIENCE IN BACTERIOLOGY

Russell Edward Brillhart
Frances Josephine Finnigan
John Thomas Och
George William Patterson
David Perlstein
Gorgonio Pasaje Quimba
David Tomkin
Jorge Ernesto Zepeda

BACHELOR OF SCIENCE IN CHEMISTRY

Robert Goldman
Thomas Knight
Herman Henry Kramm
Joseph Nicholas Masci
James Malcolm Niece

BACHELOR OF SCIENCE IN BACTERIOLOGY

Dorothy Baylies Finch
Isadore Fine
Francis Anthony Nardi
Grace Venable Richards
Violet Silver
Raymond John Strawinski
Irene Elizabeth Wagner

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Jacob Greenberg
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BLANCHE FRANCES ANCONETANI

The AMERICAN INSTITUTE OF CHEMISTS' AWARD to:

JOSEPH NICHOLAS MASCI

ABSTRACTS FROM AND REVIEWS OF THE LITERATURE OF THE SCIENCES SUPPORTING PUBLIC HEALTH

Bacteriology . . . . Louis Gershenfeld, B. Sc., Ph M.
Biology . . . . . Marin S. Dunn, Ph. D.
Chemistry . . . . . Arthur Osol, Ph. D.
Pharmacy . . . . . E. Fullerton Cook, Ph. M.
and their assistants

MEDULLARY STIMULANTS

By Horatio C. Wood, M. D., Ph. M.

ACCORDING to the dictionary, the word "analeptic" signifies "a roborant or strengthening medicine, a tonic," but the word is used by pharmacologists today to indicate a drug which is helpful in the conditions of acute failure, or depression, of circulation or respiration.

There are two important factors concerned in maintaining a proper degree of blood pressure: an efficient pumping force (the heart), and a proper degree of tone, or constriction, in the arteries and capillaries. The tone of the arteries is maintained by impulses originating in the medulla oblongata, but in many cases of acute circulatory failure there is relaxation of the blood vessels depending not so much upon the conditions in the medulla as upon disturbances of the nerves which carry these impulses to the blood vessels or upon the direct injury to the arterial muscles. On the other hand, respiratory failure is nearly always due to the lack of impulses originating in the respiratory center; there are relatively few poisons, or diseases, which destroy the conducting power of the peripheral respiratory nerves. Because of these clinical facts medullary stimulants are more frequently of value in cases of respiratory than of circulatory failure, although most of the drugs which excite the activity of the respiratory center also affect the vasomotor center.

Strychnine has been used for nearly a century as a medullary stimulant for both respiratory and vasomotor systems. It has the great disadvantage, however, that it is equally, if not more, potent in its effects on the spinal cord and in quantities efficient as a medullary stimulant is liable to throw the patient into violent convulsions; in recent years it has lost, to a large extent, the confidence of the med-

ical profession in these conditions. There are three drugs which at present are attracting much attention for use as analeptics.

Carbon Dioxide

There are several factors concerned in causing the nerve centers which control our breathing to send out rhythmical impulses to the diaphragm and other thoracic muscles, but of these various factors the most important is probably the presence of carbon dioxide in the blood stream; any increase in the proportion of carbonic acid tends to hasten respiration and a decrease to diminish it. There are certain poisons—such as carbon monoxide, the cyanides and the sulfides—which prevent the oxidative processes of the body and therefore the production of CO_2. In poisoning by these substances respiration often ceases simply for the lack of the physiological stimulant to the respiratory center. Hence the outstanding importance of carbon dioxide in the atmosphere breathed by the patient in the management of these cases.

But carbon dioxide is of service not only in those conditions where it is lacking from the blood but also in those respiratory failures which are due to poisons that lessen the irritability of the medullary centers, such as most of the narcotic drugs. The nervous mechanism which is so benumbed that it will not respond to the normal amount of CO_2 in the blood may still have sufficient vitality to respond if the proportion of this gas is raised above the normal. There are limits, however, to the usefulness of carbon dioxide inhalations in the treatment of narcotic poison, because of the fact that when the amount of carbonic acid in the blood rises beyond a certain limit there follows weakening of the heart muscle, and therefore a circulatory failure may be superimposed on the respiratory failure.

Picrotoxin

This neutral principle, which is often referred to incorrectly as a glucoside, is found in the berries of the *Cocculus Indicus,* and as far back as 1847 it was suggested that it might be useful in the treatment of morphine poisoning. In the latter part of the last century it was occasionally used as a respiratory stimulant but fell into almost complete desuetude until the work of Maloney and Tatum who advocated it in the treatment of poisoning by the barbiturates. Picrotoxin in the normal animal causes increased respiration and rise in the blood pressure by its direct action on the medullary centers, and in

toxic doses violent convulsions which are probably due to the effects on the lower part of the brain stem. A most remarkable property is its ability to arouse consciousness in poisoning by narcotic drugs, an effect which was recognized fifty years ago. Marshall attributes its value in the treatment of narcotic poisoning rather to this awakening effect than to its influence upon the medullary centers.

While its most striking effects are seen in poisoning by the barbiturates it is also of use in poisoning by other narcotics as paraldehyde tribromethanol, etc. In chloral poisoning, while it produces an awakening effect, it is not a life-saving remedy because of the depressant action of the chloral upon the heart which it does not antagonize. In morphine poisoning it is probably more dangerous than beneficial because of its convulsive tendency which is synergistic with that of morphine.

The antagonism between picrotoxin and barbiturates is a mutual one; the convulsions of pictrotoxin poisoning can be immediately relieved by a rapidly acting barbiturate, and in the poisoning by barbiturates the doses of picrotoxin required to produce any benefit might be fatal to a normal individual.

Metrazol

Metrazol (originally called cardiazol) is the pentamenthylenetetrazol, $(CH_2)_5CN_4$, and occurs as colorless, water-soluble, crystals. In its general physiological action it closely resembles picrotoxin, exciting both the respiratory and vasomotor centers and, in larger dose, causing convulsions. According to some observers it may affect unfavorably the capillary blood-vessels and its intravenous injection is not free from danger.

In poisoning by the barbiturates it is of real value but is, by most authorities, somewhat less esteemed than picrotoxin; in morphine poisoning its strong convulsive effect is a distinct disadvantage. It is also widely employed in many other forms of circulatory or respiratory failure. In recent years it has been extensively employed for "shock therapy" in certain forms of insanity. For this purpose it must be given in large enough dose to cause violent convulsions. While the treatment has obvious dangers the clinical results seem to justify its employment by properly qualified alienists.

It is marketed both in tablet form and in solution. The usual dose is from 2 to 5 grains (0.1-0.3 gm.) but this is often exceeded in severe conditions.

Coramin

Coramin, which was introduced as a substitute for camphor, more than ten years ago, is the diethylamide of pyridine carbonate $C_5H_4N\ CO.N(C_2H_5)_2$. It is a thick yellowish liquid, soluble in water, and may be administered either by mouth or hypodermically. In normal animals it excites both respiration and vaso-motion and appears to have also some stimulating action on the heart. While very large doses may cause convulsions it has relatively less effect on the motor system than either picrotoxin of metrazol.

Although coramin has distinct value in the milder cases of narcotic poisoning it is generally esteemed less efficient than either the other agents described except in morphine poisoning where its lower convulsant effect is an advantage. It is also used in other forms of respiratory or circulatory collapse but its precise value is difficult to estimate.

It is marketed in a 25 per cent. solution the ordinary dose of which is about 1 or 2 cc. but much larger amounts may be employed in serious cases.

The Story of the Pill. W. Kirby. *The Chemist and Druggist, 130,* 679 (1939). History records the name of no inventor of this traditional part of the pharmacist's stock. It came into existence through absolute necessity. Mentioned four times in the Ebers Papyrus, the pill also appears in Hippocratic writings as something to be swallowed or gulped down. Celsus used it in his De Medicina, through the Greek term "catapotium." Pliny, in his Natural History, changed the name to "pilula," a little ball or globule.

Chief uses of the pill in the days of Pliny and Celsus were to administer heroic purgatives, laxatives, hypnotics and cough remedies. Aloes, scammony and colocynth were most often prescribed in this manner.

In the Middle Ages the Arabians continued in the use of the pill, and its popularity became even more extensive. Quackery in those days was a potential field for this form of medication. Since the seventeenth century, especially in England, official pills have declined in number but have increased in variety of use and quantity of production.

Many of the famous pills named after their originators are discussed by the author of this article, together with the great change in method of manufacture from mortar and pestle, tile and slab, to

modern machinery. The perpetual pill of metallic antimony, coating and gilding, superstition and witchcraft have all had much to do in the history of the pill. Many are the curiosities in contents, shape and use. Yet, in the evolution of medical therapeutics, the pill persists. J. E. K.

Spectrophotometric Examination of Blood From Animals Receiving Sulfanilamide. T. J. Webb and M. Kniazuk. *J. Biol. Chem. 128,* 511 (1939). A series of experiments was performed to determine the amount of sulfhemoglobin and methemoglobin present in the blood of animals which have had massive doses of sulfanilamide administered to them.

The blood samples were examined with a Bausch and Lomb Spectrometer between the wave lengths of 5200 and 6600 Angstrom units. (Identifying absorption bands of methemoglobin and sulfhemoglobin generally occur between 6000 and 6400 Angstrom units.) The bloods to be studied were centrifuged, hemolyzed, diluted and changed to the proper pH before being compared in the absorption spectra against a solution with known absorption coefficients.

The usual technique of spectroscopic blood examination was followed, in which an adjustment is made so that the intensity of light coming through the sample is equal to that through the standard solution for each wave length. This adjustment then gives a direct measure of the extinction coefficient for that particular sample at that wave length. If the extinction coefficients are then plotted against wave lengths, it is easy to detect the presence of either methemoglobin or sulfhemoglobin from the resulting curves.

This process was followed for the blood samples of 81 rats which were given doses of 2 grams of sulfanilamide per day per kilogram of rat weight. All blood samples were taken directly from the heart of the animal, treated, and tested within six hours after being drawn.

The results showed that (1) the bloods of some of the animals remained perfectly normal in spite of the large dosages of sulfanilamide (2) both sulfhemoglobin and methemoglobin occurred in the blood of some of the animals, (3) cyanosis may occur in cases in which neither methemoglobin or sulfhemoglobin are present in quantities large enough to detect, (4) some bloods were found contaminated with unidentified foreign pigments which could not be attributed to either methemoglobin or sulfhemoglobin, and (5) sulfanila-

mide seemed to affect the hematopoietic mechanism controlling the character of the blood more than it affected the blood itself.

D. P. LEG.

Occupational Diseases of the Pharmacist. E. R. Hayhurst. *Merck Report, 48,* 3, 12 (1939). It should be consoling to the pharmacist and the handler of drug sundries to read the author's conclusion that such workers should live long and be relatively free of disease and health complaints, and that most of their afflictions fall in the group entitled "partly occupational diseases," which may be common to many callings other than pharmacy.

Individual allergies to certain substances do cause illnesses to pharmacists, but, in these instances, adequate care and protection in handling the substances, or obstinence from touching them, solves the problem. Close contact with the general public, including people who might transfer diseases, coughs and colds, is one of the hazards of the profession, but here again, the pharmacist's well-being is in his own hands, for he, of all people, should know the rules of public health and the prevention of the spread of disease.

In 8803 cases of occupational diseases studied in a six-year period, only 31 concerned any persons connected in any way with retail, wholesale or manufacturing pharmacy, and, of the 31, 15 were females. The cases are as follows:

Dermatitis from cleaning solutions	9
Dermatitis from chemicals	9
Skin infections from handling money	2
Dermatitis from labels and wrapping paper	1
Irritation from starched uniform	1
Nasal ulceration from acid fumes	1
Constitutional poison from filling capsules with dinitrophenol	2
Tenosynovitis of the wrist joint, from labelling and wrapping	2
Prepatellar bursitis	1
Chronic CO poisoning from working in badly ventilated basements of retail drug stores	3

It is pointed out that "pharmacist's fatigue," brought on, usually, by long hours of work and lack of exercise and change of locale, may be constitutional, or may merely indicate that the sufferer is accom-

plishing his work through ways that are inefficient, that his enthusiasm and his morale are decreasing, that his place of work is not conducive to good feeling or is poorly ventilated, or that he has some ill-defined health complaint.

Mortality figures, based on English statistics due to lack of American data, indicates that the death rate among druggists is less, per hundred, than the general average. In a three-year period among 8842 pharmacists, etc., specific diseases caused death as follows—Diseases of the digestive system, 128; of the heart, 89; respiratory tuberculosis, 85; other diseases of the respiratory system, 81; cancer of all types, 68. During the same period, 325 pharmacists committed suicide. J. E. K.

The Incompatibility of Soluble Iodides With Solutions of Strychnine. K. Wyburn. *Austral. J. Pharm. 20,* 176 (1939). The incompatibility of strychnine with soluble iodides has been reported upon by several workers. Thus Hargreaves (*J. A. Ph. A. 20,* 763 (1931)) examined the action of strychnine sulfate on iodides and found that a precipitate was formed which when dried was found to contain the percentage of iodine demanded by the theory for strychnine hydriodide. Earlier writers described a similarly obtained precipitate as free strychnine brought down by the presence of an excess of alkali in commercial iodides of that period.

In the present investigation the precipitate formed by the action of potassium iodide on strychnine hydrochloride has been analyzed and its solubility in water, hydro-alcoholic liquids, and in various concentrations of potassium iodide has been determined.

The composition of the air dried crystalline precipitate was $C_{21}H_{22}O_2N_2.HI.H_2O$. The molecule of water was lost on drying at 98 degrees C. It was found that this strychnine hydriodide is far less soluble in water than the corresponding hydrochloride or hydrobromide. The solubility moreover is sharply decreased by the presence of extra iodide ions so that it is impossible to dispense a clear solution from more than eight minims of Liq. Strychninæ Hydrochloridi B. P. (1%) with the official dose (5 gr.) of potassium iodide in half an ounce of water. With a 15 gr. dose of potassium iodide in half an ounce of water seven minims of the Liquor should not be exceeded and with 30 gr. of the iodide no more than 5 minims of the Liquor may safely be dispensed. Alcohol in an amount ordi-

narily prescribed in such combinations does not modify appreciably these proportions.

Nevertheless, Tincture of Nux Vomica in a quantity corresponding to the maximum dose of strychnine hydrochloride may be combined with the maximum dose of potassium iodide in sufficient water to make half a fluidounce without precipitation occurring even after seeding and scratching. This effect is attributed not so much by the alcohol introduced as by the other organic matter of the Tincture.

L. F. T.

The Present Status of Testosterone Propionate—Three Brands Not Acceptable for N. N. R. Report of the Council. *J. A. M. A., 112,* 1949 (1939). Within the past few months extravagant claims for the action of the male sex hormone, testosterone, have appeared in professional and lay publications. The naturally popular appeal of this substance has aroused wide interest with the aid of ample newspaper publicity. It may eventually prove that this substance, testosterone, or its esters will be a valuable addition in the field of glandular therapy but the Council feels that the claims have been grossly exaggerated. This substance has only recently been made available for clinical use but already widespread announcements have been made of its remarkable effects, both physical and psychic, which are a long way from being actually established.

According to present knowledge, testosterone propionate shows promise in only a few conditions. Careful studies have shown that it is adequate replacement therapy in true testicular deficiency, but the applicability of this therapy in actual practice is still undetermined. Its employment in cases of undescended testes, though not well established clinically, is on a sound physiologic basis. The relief so often elicited by testosterone propionate in cases of urinary retention due to prostatism is quite gratifying but a reliable evaluation of the benefits or dangers of this treatment must await extensive experimentation over a period of years. All other claims are either exaggerated or immature and should be disregarded until substantial evidence becomes available on which to evaluate them.

On this basis and without a detailed investigation of the advertising policies of the several firms marketing this product under trade names testosterone propionate was considered unacceptable for inclusion in the N. N. R.

L. F. T.

SOLID EXTRACTS

By Ivor Griffith, Ph. M., Sc. D.

Despite the form in which this information is presented it may be accepted as trustworthy and up-to-date. Original sources are not listed but they may be obtained upon request.

Progress in the stabilization of commercial fruit juices should be studied by those persons interested in fresh plant juices for medicinal use. It is known for instance, that the the *fresh* juice of the *impatiens* plant is useful in the treatment of rhus poisoning, yet no way has been devised as yet whereby the curative virtues may be preserved.

But it *is* known that fresh pineapple juice will preserve against the taste flattening of a hundred times its own bulk of orange juice, and many such facts are known about preserving fruit juices, as indicated in the next paragraph.

So it is not impractical to search such fields for methods whereby fresh herb juices, as of digitalis, belladonna, etc., may somehow be made stable. Certain it is that virtues exist in these natural juices which are nonexistent in some of their present alcoholic forms.

To continue with the subject of fruit juices will you please consider for the breakfast menu of a few years hence: Rhubarb juice. Passion fruit juice. Guava juice. Strawberry juice. Blueberry juice. These are new products that the giant-infant of the food industry, the juice business, is about to make available for your pantry.

Tomato, grapefruit and pineapple juices are the leaders in this array of liquids. Yet prior to 1925 bottled and canned juices were limited to bottled grape juice and small amounts of bottled apple, loganberry and other berry juices.

Grapefruit juice came in in 1926, tomato juice was packed first on an important scale in 1928 and pineapple juice joined the procession in 1931.

The total quantity of fruit and vegetable juices preserved exceeded 32,000,000 cases in 1937. The volume is still growing and tomatoes alone provide approximately 13,500,000 cases annually.

Canned orange juice introduced in 1930 reached large commercial production in 1934. More recently lemon and cranberry juices have appeared, along with the "nectars" of apricots, peaches and pears. Plum, cherry, papaya, currant, tangerine and pomegranate juices are available. Sauerkraut juice is well known and small amounts of celery, spinach, carrot, garlic, onion, beet and lettuce juices are packed.

And in all truth, our dietary and vitamin picture has been much improved since these useful materials have become so available.

Three recent developments, it can be reported on the authority of Arthur D. Little, Inc., of Cambridge, Mass., are rapidly revolutionizing the industry.

The first, the introduction of continuous flash-pasteurization processes, is of very great importance, as it makes possible the preservation of practically all kinds of fruit juices without the simultaneous formation of a "cooked" flavor formerly thought to be a necessary accompaniment of pasteurized fruit juices. The second development has been made by the leading can companies by the perfection of enamels which prevent the corrosion of the tin by acid juices. Cans have come into general use for fruit juices and are very popular containers for these products. The third advance has been the introduction of cloudy and pulpy juices, which in most cases have much more flavor than the clarified products.

Quinine and morphine have not yet been synthetically prepared, nor has any complete substitute been found for either. Tedious search has been made in both directions for many years, but to no avail. It will be remembered that Perkins accidentally discovered the first coal tar dye while searching for a synthetic quinine.

Efforts to find a way to make synthetic morphine and quinine or satisfactory substitutes for these two drugs have been carried on at the U. S. National Institute of Health since early in 1939.

The search for a synthetic morphine without habit-forming or addiction properties has been going on for nine years under the joint auspices of the U. S. Public Health Service and a committee of the National Institute of Health.

This line of research is being continued at the National Institute of Health, but in addition to looking for a non-habit-forming morphine, the federal scientists are trying to develop a chemical at least as good as morphine for controlling pain, even if it is also habit-forming, so that patients and physicians in the United States will be independent of morphine.

Nothing has ever succeeded in completely replacing quinine for the treatment of malaria, nor has anyone been able to make quinine from anything but the bark of the cinchona tree.

Although the world's first quinine came from the bark of cinchona trees in Peru, the world's supply now comes from Java and the Dutch have a monopoly on this supply. Atebrine and plasmochin have been used in malaria control work but are not universally accepted as completely satisfactory quinine substitutes.

Those who doubt the progress of organized medicine should read and re-read these few paragraphs.

In the Civil War 10 per cent of all deaths were from typhoid. In the Spanish-American War every fifth soldier in our Army fell ill of typhoid, and 86 per cent. of all deaths were from typhoid.

In the Great War there was practically none! Why? Because in the interval between 1898 and 1914 vaccination against typhoid had been discovered and developed.

Let us illustrate by two great experiments on 8000 and on about 750,000 human beings respectively:

Plymouth, Pennsylvania, a town of eight thousand people, was supplied with water from a reservoir fed by a mountain stream. In the first three months of 1885 one man living on the banks of this stream was ill with typhoid fever. His copious dejecta were thrown upon the snow without distinction. When a warm thaw with rain occurred towards the end of March, the germs of typhoid from the dejecta were washed into the stream. On April 10th an epidemic of typhoid broke out in the town and caused, in all, 1104 cases and 114 deaths.

From September 21, 1917, to January 25, 1918—the figures are official—a period about two weeks longer than the war with Spain, there were, on the average, 742,626 soldiers every day in the camps in

the United States. They came from unprotected communities, where autumnal typhoid was rife. Yet during these four months there were but 114 cases of typhoid and five of paratyphoid fever, a milder fever closely resembling typhoid. Had the conditions of 1898 prevailed, there would have been 144,506 cases and about 15,000 deaths.

To generalize about anything may be either very safe or very unsafe. For instance, it has been said that aspirin (acetyl-salicylic acid) added to the water preserves cut flowers. It *does,* but only with certain varieties and in certain concentrations. The same is true of methenamine. Blue flowers are best kept in water slightly chemicalized with alum and sodium nitrate.

One of these days when the stabilization of the authocyanin pigments (flower colors), is better understood we shall have what has been so long the desideratum of the florist, a perfectly blue rose.

Medical Jurisprudence and Toxicology. By William D. McNally, A. B., M. D., Assistant Professor of Medicine and Lecturer in Toxicology at Rush Medical College; Attending Toxicologist to the Presbyterian Hospital, etc. 386 pages, illustrated. W. B. Saunders Co., 1939.

Pharmacists are often accused of usurping the physician's prerogative by "counter prescribing" but in emergencies—such as acute poisonings—where a few minutes may be the determining factor between recovery or death, the druggist is not only legally permitted but also morally obligated to do whatever he can provided he has a reasonable degree of knowledge of what ought to be done. In many cases of acute poisoning the druggist is the first thought; his store is near at hand and he is in the store. It is obvious that every pharmacist should have a useful knowledge of toxicology.

Contrary to a prevalent idea, toxicology is not a "dead" science, but is growing and developing just as any other branch of medical practice. Not only are the large number of new chemicals used in industry or medicine presenting new problems but the advances which have been made in the treatment of many of the older forms of poisoning are worthy of note; the present day management of bichloride poisoning, for example, is as far removed from the classical "white of eggs or milk" regimen as is the modern treatment of tuberculosis from that employed in the gay nineties.

No pharmacists' library is complete which does not have a good reference work on toxicology and here is one which we can truthfully and gladly recommend. It is especially notable for the following reasons: First, and most striking, is its up-to-dateness. Not only does it include practically all the modern toxic agents—like sulfanilamide, fluorides, black widow spider, tear gas, etc.—but the author shows his knowledge of the large amount of recent experimental study on the older poisons. Secondly it covers the entire subject of toxicology, including treatment, diagnosis (either symptomatically or chemically) and prognosis and gives frequent references to the recent literature for those who wish to make a special study. Thirdly, despite the huge amount of information which has been condensed into so small a space there has been no sacrifice of readability. Taken as a whole we can not recall ever having reviewed a book which we could more heartily recommend to all pharmacists, as well as physicians.

H. C. WOOD.